

closing a regulator loop with an output signal from an output driver
by feeding it back into a high voltage input signal; and
25 driving a load with a high voltage output from an output driver.

2. The method according to claim 1 wherein said step of transforming a static high supply voltage level into a static current is implemented using a resistor.
3. The method according to claim 1 wherein said step of transforming a static high voltage supply level into a static current is implemented using an equivalent resistor circuit built of semiconductor circuits.
4. The method according to claim 1 wherein said step of transforming a high-voltage input signal into a proportional current signal is implemented using a PMOS transistor, configured as a source follower working together with an NMOS transistor, for decoupling the current mirror stage.
5. The method according to claim 1 wherein said step of transforming a high-voltage input signal into a proportional current signal is implemented using a PMOS transistor with extended drain, configured as a source follower working together with an NMOS transistor, for decoupling the current mirror stage.
6. The method according to claim 1 wherein said step of transforming a high-voltage input signal into a proportional current signal is implemented using a PMOS transistor, configured as a source follower working together with an NMOS transistor with extended drain, for decoupling the current mirror stage.

- 5
7. The method according to claim 1 wherein said step of transforming a high-voltage input signal into a proportional current signal is implemented using a PMOS transistor with extended drain, configured as a source follower working together with an NMOS transistor with extended drain, for decoupling the current mirror stage.
 8. The method according to claim 1 wherein said step of mirroring said resulting current input signal into a proportional current output signal is realized using a current mirror circuit.
 9. The method according to claim 1 wherein said step of generating a low voltage output signal representing said current output signal is realized using a resistor.
 10. The method according to claim 1 wherein said step of generating a low voltage output signal representing said current output signal is implemented using an equivalent resistor circuit built of semiconductor circuits.
 11. A circuit, capable of driving higher loads for higher voltages and higher currents with slew rate controlled output signals,
comprising:
means for transforming a static high voltage supply level into a
5 static current;
means for transforming a dynamic high voltage input signal into a
proportional current signal;

means for combining said static current and said proportional current signal into a resulting current input signal;

10 means for mirroring said resulting current input signal into a current output signal;

means for generating a low voltage output signal representing said current output signal;

15 performing differential transactions upon said low voltage output signal, in relation to given time steps from a clock generator;

converting a low voltage differentiated output signal into a digital bit signal by a comparator using a given time step related reference;

feeding said bit signal into a digital regulator part for further processing and generate a digital output signal;

20 convert said digital output signal into an analogue signal as input to an output driver circuit;

means for driving an external load with said high voltage output from said output driver.

12. The circuit according to claim 11 wherein said means for transforming a static high voltage supply level into a static current is a resistor.

13. The circuit according to claim 11 wherein said means for transforming a static high voltage supply level into a static current is an equivalent resistor circuit built of semiconductor circuits.

14. The circuit according to claim 11 wherein said means for transforming a dynamic high voltage input signal into a proportional current signal is a resistor.
15. The circuit according to claim 11 wherein said means for transforming a dynamic high voltage input signal into a proportional current signal is an equivalent resistor circuit built of semiconductor circuits.
16. The circuit according to claim 11 manufactured with the help of discrete active and passive components.
17. The circuit according to claim 11 manufactured with the help of discrete components and integrated circuits.
18. The circuit according to claim 11 manufactured in integrated circuit technology.
19. The circuit according to claim 11 manufactured in monolithic integrated circuit technology.
20. The circuit according to claim 11, manufactured in monolithic integrated CMOS technology.
21. The circuit according to claim 11, manufactured in monolithic integrated CMOS circuit technology with additional discrete PMOS and NMOS transistors.
22. The circuit according to claim 11, manufactured in monolithic integrated CMOS circuit technology with additional discrete PMOS and NMOS transistors with extended drain technology.

- 23.** The circuit according to claim **11**, manufactured in monolithic integrated CMOS technology with additional PMOS and NMOS transistors, assembled in Chip-On-Chip technology.
- 24.** The circuit according to claim **11**, manufactured in monolithic integrated CMOS technology with additional PMOS and NMOS transistors with extended drain technology, assembled in Chip-On-Chip technology.
- 25.** The circuit according to claim **11**, wherein said means for performing differential transactions upon said low voltage output signal, in relation to given time steps from a clock generator is realized in integrated low-voltage CMOS technology.
- 26.** The circuit according to claim **11**, wherein said means for converting a low voltage differentiated output signal into a digital bit signal by a comparator using a given time step related reference is realized in integrated low-voltage CMOS technology.
- 27.** The circuit according to claim **11**, wherein said means for feeding said bit signal into a digital regulator part for further processing and generate a digital output signal is realized in integrated low-voltage CMOS technology.
- 28.** The circuit according to claim **11** wherein said means for mirroring said resulting current input signal into a current output signal is set up using a current mirror.
- 29.** The circuit according to claim **28** wherein said current mirror circuit is implemented in integrated circuit technology.

DS-02-021

- 30.** The circuit according to claim **28**, wherein said current mirror circuit is realized in integrated CMOS technology.
- 31.** The circuit according to claim **28**, wherein said current mirror circuit is realized in low-voltage CMOS technology.